## ABSTRACT

## SCHEDULING OPTIMIZATION OF THERMAL GENERATION IN LAMPUNG ELECTRICITY SYSTEM USING PSO METHOD (Particle Swarm Optimization)

## By

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Generation scheduling is one important thing in the operation of electric power systems. The basic purpose of the optimal scheduling is set load generating units with minimum cost by taking into account several constraints. Operation of the plant economically influenced by characteristics of the plant, capacity limit of the maximum and minimum power generation, the cost of fuel at each generating unit, and losses transmission from generation to load.

This research intends to obtain the optimal combination of thermal generation scheduling and cost effective in Lampung Electricity System. Combinations that performed in this research are based on certain load conditions of the election the amount of power that generated by a power plant in within 168 hours.

Economical solution that used for search the most optimal value to minimization of generation cost in 168 hours is PSO method (Particle Swarm Optimization). Results of generating units combination by using PSO method in Lampung peak load demand 614,7 MW is the fifth major plant consisting of Way Besai Hydro Power Plant, Batutegi Hydro Power Plant, New Tarahan Steam Power Plant, Sebalang Steam Power Plant, and Ulubelu Geothermal Power Plant in 'on' state with total cost \$ 18752,6908, while Teluk Betung Diesel Power Plant, Tarahan Diesel Power Plant, and Tegineneng Diesel Power Plant in 'off' state and not connected to the system.

Keywords: Economic Scheduling, Unit Commitment, Particle Swarm Optimization.